

# **NO<sub>x</sub> Emissions Reductions and Reduction of Regional Ozone Transport**

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**Indiana NO<sub>x</sub> SIP Call Rule**

# Indiana NO<sub>x</sub> SIP Call

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## Reasons for Rulemaking

- P Required by federal regulations**
- P Rule helps Indiana counties to meet the one-hour ozone standard**
  - < Lake/Porter**
  - < Clark/Floyd**
- P Reduces Indiana's contribution to ozone transport**

# **Indiana NO<sub>x</sub> SIP Call**

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## **History of U.S. EPA NO<sub>x</sub> SIP Call**

- P U.S. EPA promulgates NO<sub>x</sub> SIP call - 10/27/98**
- P U.S. District Court of Appeals (D.C. Circuit) issues a stay of the SIP call - 5/25/99**
- P U.S. District Court of Appeals (D.C. Circuit) upholds the SIP call - 3/3/00**
- P U.S. District Court of Appeals (D.C. Circuit) extends the SIP call compliance date to May 31, 2004 - 8/30/00**



# **Indiana NO<sub>x</sub> SIP Call Rule**

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## **Overview**

- P Requires a 31 % reduction of statewide NO<sub>x</sub> emissions by 2007**
- P Control measures must be in place by May 31, 2004**
- P Applies only during ozone season (May through September)**
- P Includes a regional emissions cap and trade program administered by U.S. EPA**
- P Similar rules under development in 22 states in the eastern U.S.**

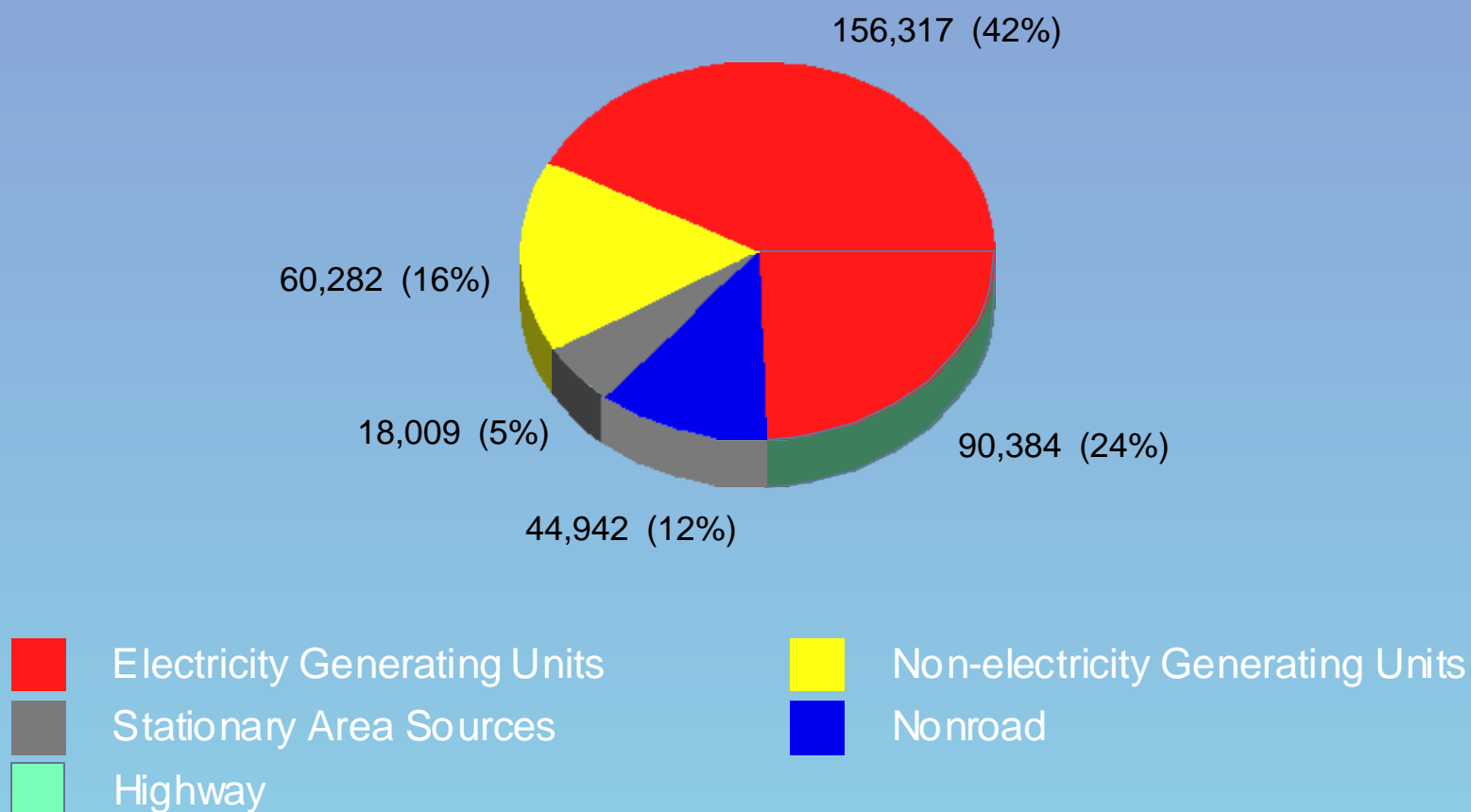
# Indiana's NOx Emissions

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Ozone Season Emissions	
1995/1996 Statewide NOx Emissions	369,934 tons
2007 Emissions without SIP Call	340,654 tons
2007 Emissions with SIP Call	234,625 tons
Percent Reduction in 2007	31%

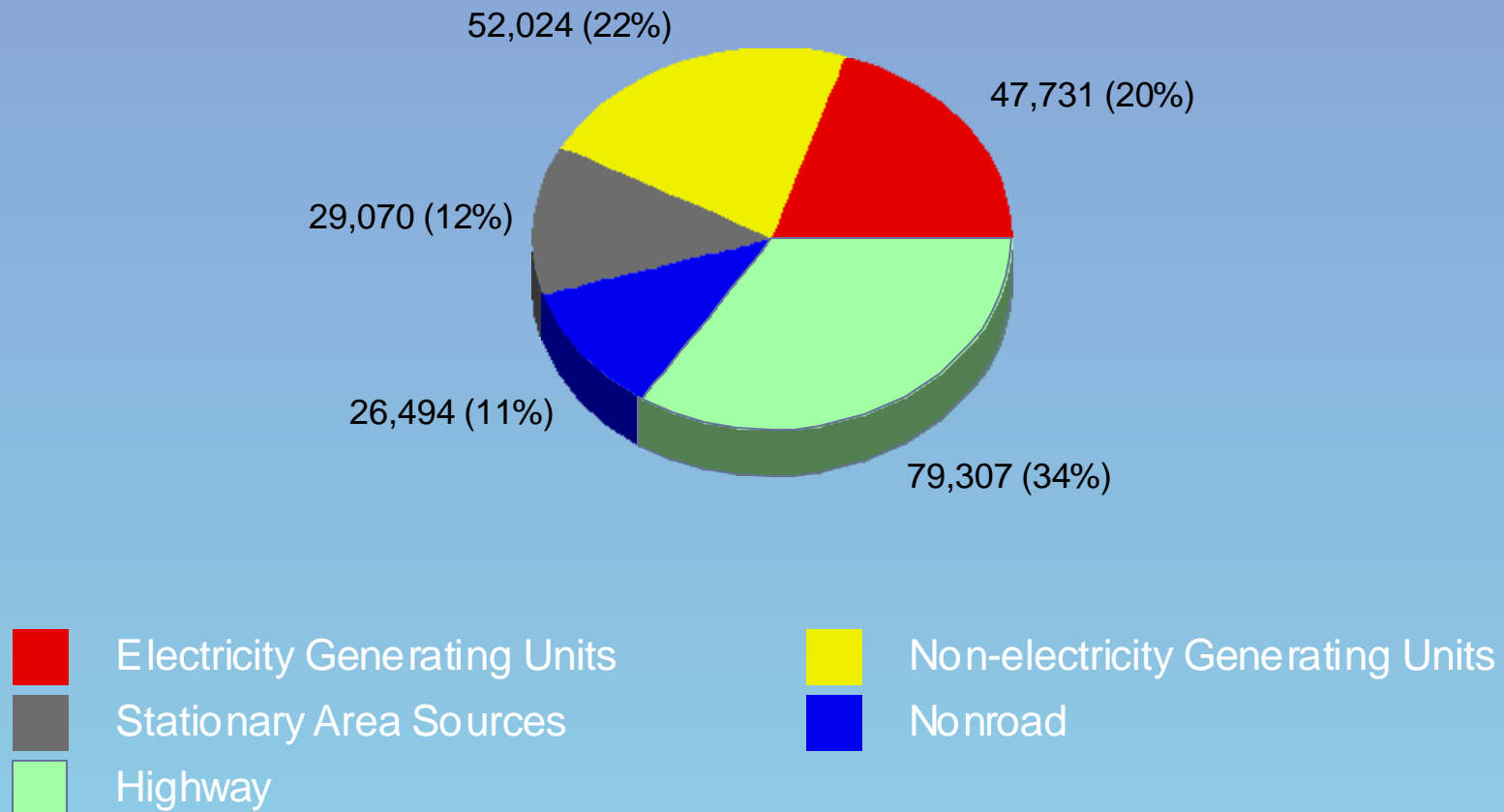
# NO<sub>x</sub> Emissions - 1995/1996

## 1995/1996 Indiana Emissions by Sector (U.S. EPA estimates in tons/ozone season)



# 2007 NO<sub>x</sub> Emissions Budget

## 2007 Indiana Emissions Budget by Sector (U.S. EPA estimates in tons/ozone season)



# **NO<sub>x</sub> Emissions Reductions**

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## **Affected sources and U.S. EPA Assumed Controls**

**P Rule will affect:**

- < 94 Electric generating units (EGUs)**
- < 52 Large industrial boilers > 250 mmBtu/hr heat input**
- < 8 Cement kilns**

**P Electric utilities - 65% reduction**

**P Large industrial boilers and turbines - 60% reduction**

**P Cement manufacturing plants - 30% reduction**



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## Cement Kiln Requirements

**P Install specific control technology:**

- < Low NO<sub>x</sub> burners**

- < Mid-kiln firing**

**P Meet emission limits that are a 30% reduction from uncontrolled emissions**

**P Installation and use of alternative control techniques that achieve a 30% reduction**

# **Model NO<sub>x</sub> Emissions Trading Program**

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## **Regional Trading Program Elements**

- P Utilities and large industrial boilers required to participate**
- P Each source will have a compliance account**
- P Allocation based on 0.15 lb/mmBtu for utilities and 0.17 lb/mmBtu for industrial boilers**
- P An allocation set-aside for use by new units**
- P A compliance supplement pool for compliance extensions during first 2 years of program**
- P 59,799 “allowances” (1 ton of NO<sub>x</sub>) available for allocation to units (bulk of allowances for utilities)**

# Indiana NO<sub>x</sub> SIP Call

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## NO<sub>x</sub> Control Technologies

- P **Selective Catalytic Reduction (SCR)**
- P **Selective Non-catalytic Reduction (SNCR)**
- P **Low NO<sub>x</sub> Burners**

# Indiana NO<sub>x</sub> SIP Call Rule

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## Cost Effectiveness\*

**P Non-EGUs (industrial boilers) - \$985 to \$2,862 per ton of NO<sub>x</sub> reduced**

**P EGUs (utilities) - \$2,366 per ton of NO<sub>x</sub> reduced**

**P Cement plants - \$760 to \$1,228 per ton of NO<sub>x</sub> reduced**

**\*Estimates based on data from U.S. EPA, IDEM and Indiana sources**

# Indiana NO<sub>x</sub> SIP Call

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## Compliance Verification

- P Units must “true-up” at end of ozone season and must have sufficient allowances in accounts administered by U.S. EPA**
- P Units in trading program must install continuous emissions monitoring (CEMs) or use accepted alternatives under 40 CFR 75**
- P Cement kilns will use CEMs, stack testing, or keep records of control technology maintenance depending on the emission limit**

# Indiana NO<sub>x</sub> SIP Call

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## Key Issues

- P How to allocate emission allowances among existing units?**
- P How to accomodate new units and growth at existing sources?**
- P How to provide for potential energy reliability concerns if sources unable to comply by May 2004, despite best efforts?**

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## Key Issues (continued)

- P Whether and how to encourage energy efficiency and renewable energy projects?**
- P Are there alternate compliance options available?**
- P What is the effect of court actions? Some states, including Indiana, have asked the United States Supreme Court to review the ruling that upheld the federal requirement.**

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Rule availability and rulemaking schedule

**P Rule available at:**

**[www.state.in.us/idem/oam/standard/Sip/index.html](http://www.state.in.us/idem/oam/standard/Sip/index.html)**

**P Rule published in Indiana Register on 12/1/00**

**P Public comment period lasts through 1/2/01**

**P Preliminary adoption on 2/7/01**

**P For more information, contact: Roger Letterman,  
317/232-8342, [rletterm@dem.state.in.us](mailto:rletterm@dem.state.in.us)**